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SINCUS NEWS

Sinclair Computer Users Society
1229 RHODES ROAD
JOHNSON CITY, NEW YORK 13790

--As of Feb 20, TUBBS is no more. Bob's business has grown to the point where he hasn't the time, we at SINCUS are glad for the opportunities to mget and hear Bob and to have used his BBS, we thank him and are sorry to see him go.

January 21, 1987, our regular monthly meeting started off with: Robert French, SYSOPS of TUBBS, talked about his BBS and the hows and whys of telecommunications. He discussed the volume of information available to mankind, and that this amount is doubling every 20 months. (Watch PBS, "Earth", "Nova", etc to get an idea of all the phyiscal surveys of this world and our universe that collects reams of new data every day) To help in the exchange of this data telecommunications helps buisness and science and government transfer large volumes of data at hi speed and acurrately. Us individual human beans can tap some of this data, via our little 300 and 1200 baud modems thru services such as Compuserve and the Source. Note however the charges each exacts from our plastic. A group of computer users, subscribe to a thought of providing free or low cost bulletin boards and or data bases. After turning their computers over to the public, they then are responsible for what ever happens to appear on their BBS. If a copyrighted program appears without the permission of the author, the SYSOPS (System operator) is then liable for any loss of profits due to illegal pirating. Individuals have thought up and used abusive functions to BBS. This tends to cut down on the number of free-no charge- boards to the public. The SYSOPS pays for his computer, extra storage and BBS program. Some accept advertising, and some like a FIDO net, charge for the transmission of mail.

-Bob came quite prepared for the talk, with transparent overlays, showing the different screens on his system and handouts of local and club interest and free pens. A couple points he hit on that are new to me are 1)Thread - a system of tying common message base questions and answers together. 2) Edit function will help you with spelling! and how to use stack commands and that by uploading files, one can increase daily time available.

February 18, 1987, with about a dozen present, we held our monthly meet at the Vestal Public Library. Wes Brozozowski brought along his US Spectrum, a British ZXSpectrum adapted for our 60Hz, 110v lines and our TV. About the size of a 2068 less the cartridge port, black with grey rubber chicklet keys and red print, it makes you happy Timex came along when they did! With Microdives hooked up, Wes demoed a couple games and Super Basic. Clyde Tackley and your truly connected modem to modem, his with Mterm 2 on a cartridge, and me with Tiny Board loaded in. With Drs. Wes and Dave Schoenwetter, the matter of making the two connect was a five minute go around with Tiny Board. And soon Clyde was typing on MY screen just like if he went over the phone lines! This now makes two ways we have direct connected modems, both with Mterm, and now this way.

-Hi and hello to new members, David Smith, Johnson City NY; Stu Walton, Rowley MA; William Walker, Huntington WV; James Kerr, Dolton IL; Jack Deuber, Casselberry FL; Claude Schleyer, Albuquerque, NM; Harold Crandall, Oxford CT; Jim Willits, San Marcos CA; Larry Anderson, Davenport IA; G.T. Cook, Gainesville , FL; A. Kahale, Hoffman Estates, IL; Joan Kealy, El Paso, TX; and Bill Barnhart, Falls Church VA. To current

members, if your name/address label has a 3/87 or a 4/87, dues for the next 12 months are due. This is the only notice you will receive.
-We are glad to welcome into our newsletter swap the Detroit Area TSUG and the Ottawa/Hull TSUG. We have dropped a couple groups for not carrying their half of the swap. Triangle TSUG, Hampton Roads TSUG , Las Vegas TSUG, ATSU of Columbus, Ohio and the Cincinnati TSUG. We have been mailing to these groups for over a year with nothing received from them.

Last issue we carried a plea from Don Lambert for help with his ZX80, well I am very pleased to say that TWO members sent in schematics for the ZX80 and later we will carry the schematic for all. Thanks to all concerned!!

March meet- our Treasurer, George Penney, will be giving a talk on his TS1000 program for his business. With this program, you can reprogram with four or five words in English yet and have the data already stored in memory be listed in a different relationship. George is a programmer from way back when not only was 16K of RAM alot, but it was about the most available, so he has learn well how to make the most with the least.

Meet dates-March 18 and April 15 both at 7pm, at the Vestal Library-come early-snow might melt some-we have been REAL lucky this year-a couple meets have been sandwiched between some heavy snows-March has always been a bad month, and April is always up for grabs-so if we dont see you by April, then MAY for sure!

NEW, NEWS, VIEWS and REVIEWS.....by Paul Hill
Sinclair Computer Trivia-Is SIR Clive Married and if so what is his spouse's name.?? See last page for answer(s). Anyone have any interesting reading material on Sir "C", send it on in.

BACK ISSUES-several members have asked about such. Last October we ran out of a special run of back issues- they ran from Nov 1984 to current month. Due to not finding a copier at low price, and available for personal use, we will not be able to repeat a back issue offer. Current prices put the price in the range of $3 per issue, and 15 back issues available.....so at these prices, I am not going to copy our back issues.

NEWS:TS Horizons and the newsletter SYNAPSE will discontinue publishing this year, notice has gone out to subscribers and advertisers. Unlike past practice, where one folds the tent first, and then lets checks bounce, these people are showing class. If anyone has a current address as of Feb 1987 for SYNAPSE, please let me know, the PO keeps returning N/Ls mailed to them as "no such street". My last known address is: SYNAPSE, 642 North Street, State College, PA 16801. Robert Heil, editor, is just about single handedly going to meet the commitments of the group out of his own pocket.
NEWS:We have heard ZEBRA SYSTEMS was dropping their disc drives from Timex, now we hear ZEBRA will be no more! From "MERGE", TS-Spectrum Users, 1611 Rose Ave, Merced CA 95340..."after a few phone calls I discovered that they will soon be closing their doors, and may not make it to the 2nd Annual Computerfest in May"! I note they also mention E A Brown in the same bunch of past supporters. From others we learn that DAMCO is dropping the Waferdrive system as no one makes the microdrive cartridges for it.
VIEWS:Keep subscribing to the remaining mags- SYNCWARE NEWS,PO BOX 64, Jefferson, NH 03583- a year for $16.95 and TIME DESIGNS 29722 Hult Rd.,Colton, OR 97017 a year is $15 and support your user group.
NEW: Sir Clive announces a IBM Compatiable lap-top portable, weighs 2 pounds, priced around $350 this from RMG, Rod Gowen and CCATS "Plotter", Oregon City, OR. More data on this as received.

NEW: 256K RAM boards under development, Larken Electronics is reportedly one of two outfits. This from the Jan/Feb issue of TIME DESIGNS.

- For past several months, I have been trying different methods-
- of publishing this newsletter. Memographics usually are -
- decent both cost and repro wise. Several pages are weak, a -
- production problem, likewise too much ink. I have compounded-
- the problem by not watching my borders. And in general mixing-
- light and dark copy on the same page. With the last mailing -
- I found that envelops will solve a couple problems that a -
- few members have had, not getting the whole newsletter. So -
- from now on, envelops ! If you are dissatisfied or have a -
- problem reading the material, let me know what and I'll try -
- to fix what ails you and try to keep it from occuring again.-
- Thank you for your patience-your editor-PAH -

NEWS: From Bill Pierson, Germany comes word that Santie brought a IBM compatiable for Christmas, so to share his wealth of old Sinclair goodies he sent us some 13 pounds of old issues of ZX Computing. Some are so old that the ZX81 is news! Thanks Bill, we'll still keep you on the mailing list even though....

NEWS: From Dave Harris, Korea, smoked his TS1500 awhile back and is ordered a QL which he plans to soup up. He wants to increase RAM by replacing the 64K RAM chips with 256K chips. Wants to know if anyone has done such. He has done similiar to a Atari 520ST by piggybacking 32, 256K chips, thus getting a 1Meg Machine. Any help appreciated....

FOR SALE: From David Ray, Tele: 615-245-3720, Aerco DD in cabient with power supply and 128K upgrade, disc controller and switching and documentation. It is PARTIALLY assembled....sell for best offer or trade for TS2068/Spectrum or peripherals

```
  1 REM ▓▓ "rnd draw" ▓▓
  3 REM ▓▓ YOU CAN NOT BREAK
THIS PROGRAM ! ▓▓
  4 REM From SYNC Mar/Apr 1984
  5 PAPER 0: CLS : BORDER 0
 10 DEF FN r(x)=INT (RND*x)
 15 ON ERR GO TO 20
 20 PLOT 127,87
 25 LET a=FN r(150)-75
 30 LET b=FN r(150)-75
 35 LET i=FN r(7)+1
 40 DRAW INK i,a,b
 45 GO TO 25
```

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1229 Rhodes Road
Johnson City, NY 13790

Coming next issue SINCUS NEWS .Proportional printing on your 2040/and 2068 L*O O K for it ! also more on the 2068 ROM printout.

MARCH meet-George Penny to present a talk on writing a new language for your 1000 or 2068- short, sweet and easy to use! March 18 at the Vestal Public Library, 7pm

CLONE----TS2068 TAPE COPIER-----CLONE

CLONE is a tape copier utility/header reader program available to members. It is sold nationally by several vendors under the name - CLONE. It enables you to make back up copies of virtually ANY 2068 or Spectrum program on the market today. This backup copy is legal, as long as you own the copyrighted program and keep the orginial purchase. We are simply selling a program which enables you to protect your valuable investment, the orginial tape. You can copy it with either the tape to tape method or the single tape recorder method. You can use the data from the header reader to make the conversion to disc or micro drive easier. This program has been on the market for two years, it works. Get your copy today, send a check for six dollars, and if your subscription is about due add eight more, we'll be glad you did-thank you.

CLONE----TS2068 TAPE COPIER-----CLONE

The REAL Beginner's Guide to Modeming on a TS2068

Lesson 4 UPLOADING a BASIC Program on a BBS

by P. Hill, RBMU*

A step by step road map of how to get your computer in sync with thousands of other TS users.

```
      Mterm              program            BBS
      Xmodem----------> to UpLoad------> file
        1.                 2.               3.
```

I am using a 2068/2050 modem with Mterm 2 modified with Loader V by Kurt Casby.

1. LOAD "loader"CODE: "mterm"CODE. This gets your xmodem code and mterm mc program in your TS2068. You cannot use the Basic "Loader V" with this UPLOAD function.
2. a) LOAD or MERGE "BASIC" program. Check beforehand that it is under 27K and NO machine code. If it is self or auto running take care to REM these instructions, as it may CLEAR part of the mterm or loader machine code. Do not >NEW< at this point, as this will wipe out the loader code.
   b) PRINT USR 54016 >ENTER< to get into mterm.
   c) Setup auto dial information, if you have not done this before.
   d) Select A for Auto dial menu, and pick the BBS that you want. Again Capital letters seem to work best. Check your phoneline to make sure you are connected.
3. a) After connecting, LOG on the BBS.
   b) With many BBS, Entering a "U" gets you to the UPLOAD portion of the BBS. You will be asked to enter the name of the file you wish to send. Make up a 10 (max) letter name, with the last four letters reserved for ".BAS" such as TIMEXP.BAS. This name is compared with all the others to see if a dupilcate is being entered. So do homework and check out the files first!
   c) A certain amount of time is allowed giving you opportunity to start sending. If asked for transmission protocal, X for xmodem, and the BBS is ready to recieve. Now you, have to:
      1. Control 8 >Caps Shift and 8< gets you the menu across the bottom of the screen.
      2. >M< gets you the main menu.
      3. >E< gets you into BASIC.
      4. PRINT USR 24024 >ENTER< gets Xmodem going. Screen blanks, and soon little "+" walk across the screen. Each reps 128 successfully transmitted bits of data.
   d) After completion, you will be asked for a short description of the program. Read other descriptions to get a handle for what is left by others.

That is even easier than downloading! With some BBSs you get addional time for the uploads. And Uploading time usually is not counted against the time allowed on the BBS. The file is usually kept in a recent upload file, and after house keeping by the SYSOPS weekly, your new file will appear in the appropiate sub file. The Sysops weeds out copyrighted material, and junk. If the BBS is on a IBM system, the SYSOPS probably cannot read any of the TIMEx file and hopes the files are legit. Please do not screw up what remains of free boards and the good intentions of others by misusing copyrighted programs.

* RBMU=Real Beginner Modem User

Lesson One is still being written

```
                ;Print pixel characters.  Enter with DE pointing to pixel
                ; pattern, HL=display file address, BC=line/column
                ;  Identical to Spectrum at 0B7F

06B4 79       L06B4 LD   A,C
06B5 3D             DEC  A              ;Move over one column
06B6 3E21           LD   A,#21
06B8 200E           JR   NZ,L06C8       ;If there's still room on this line

06BA 05             DEC  B              ;Move down a line
06BB 4F             LD   C,A
06BC FDCB014E       BIT  1,(IY+1)       ;FLAGS - Printer/Screen
06C0 2806           JR   Z,L06C8        ;If screen

06C2 D5             PUSH DE
06C3 CD230A         CALL #0A23          ;Dump printer buffer to printer
06C6 D1             POP  DE
06C7 79             LD   A,C

06C8 B9       L06C8 CP   C              ;Check wether it's a new line
06C9 D5             PUSH DE
06CA CC9007         CALL Z,#0790        ;Check on scrolling, if it is
06CD D1             POP  DE

06CE C5             PUSH BC             ;Make print masks for INVERSE & OVER
06CF E5             PUSH HL             ;B will be 00 for OVER 0
06D0 3A915C         LD   A,(P_FLAG)     ;         FF for OVER 1
06D3 06FF           LD   B,#FF
06D5 1F             RRA
06D6 3801           JR   C,L06D9

06D8 04             INC  B

06D9 1F       L06D9 RRA                 ;C will be 00 for INVERSE 0
06DA 1F             RRA                 ;         FF for INVERSE 1
06DB 9F             SBC  A,A
06DC 4F             LD   C,A
06DD 3E08           LD   A,#08
06DF A7             AND  A
06E0 FDCB014E       BIT  1,(IY+1)       ;FLAGS - Printer/Screen
06E4 2805           JR   Z,L06EB        ;If screen

06E6 FDCB30CE       SET  1,(IY+48)      ;FLAGS2 - There's info in print buffer
06EA 37             SCF

06EB EB       L06EB EX   DE,HL

                ;Finally!!! We actually PRINT a character!!!
                ; Identical to Spectrum at 0B87

06EC 08       L06EC EX   AF,AF'         ;Save the CY (=1 for printer)
06ED 1A             LD   A,(DE)         ;Present byte (if display file)
06EE A0             AND  B
06EF AE             XOR  (HL)           ;OVER requirements are met
06F0 A9             XOR  C              ;INVERSE requirements are met
06F1 12             LD   (DE),A         ;Ship out the result
06F2 08             EX   AF,AF'         ;CY still =1 for printer
06F3 3813           JR   C,L0708        ;If printer

06F5 14             INC  D              ;Here for screen, point to next
06F6 23       L06F6 INC  HL             ; pixel line in display file...
06F7 3D             DEC  A
06F8 20F2           JR   NZ,L06EC       ;...and loop if character not done

06FA EB             EX   DE,HL          ;Now fix up the attribute byte
06FB 25             DEC  H
06FC FDCB014E       BIT  1,(IY+1)       ;FLAGS - Printer/Screen
0700 CC1007         CALL Z,#0710        ;Print the attribute byte
0703 E1             POP  HL
0704 C1             POP  BC
0705 0B             DEC  C
0706 23             INC  HL
0707 C9             RET

0708 08       L0708 EX   AF,AF'         ;Here for printer. Save CY again
0709 3E20           LD   A,#20          ;Character bytes are separated by #20
070B 83             ADD  A,E
070C 5F             LD   E,A
070D 08             EX   AF,AF'
070E 18E6           JR   L06F6

                ;Write the attribute byte
                ;  Identical to Spectrum at 0BDB

0710 7C             LD   A,H
0711 0F             RRCA
0712 0F             RRCA
0713 0F             RRCA
0714 E603           AND  #03
0716 F658           OR   #58
0718 67             LD   H,A
0719 ED5B8F5C       LD   DE,(ATTR_T)
071D 7E             LD   A,(HL)
071E AB             XOR  E
071F A2             AND  D
0720 AB             XOR  E
0721 FDCB5776       BIT  6,(IY+87)      ;P_FLAG - Paper=Compliment of INK
0725 2808           JR   Z,L072F        ;If we're not using PAPER 9

0727 E6C7           AND  #C7
0729 CB57           BIT  2,A
072B 2002           JR   NZ,L072F

072D EE38           XOR  #38
072F FDCB5766 L072F BIT  4,(IY+87)      ;P_FLAG - INK=Compliment of PAPER
0733 2808           JR   Z,L073D        ;If not using INK 9

0735 E6F8           AND  #F8
0737 CB6F           BIT  5,A
0739 2002           JR   NZ,L073D

073B EE07           XOR  #07
073D 77       L073D LD   (HL),A
073E C9             RET

                ;Print messages & Tokens. Enter with A register = message #
                ; in table, and DE = address of the table.
                ;  Similar to Spectrum at 0C0A

                ;Here to print a message from a message table
073F E5             PUSH HL
0740 2600           LD   H,#00
0742 E3             EX   (SP),HL
0743 180A           JR   L074F

                ;Here to expand a token from the Token Table
0745 119800         LD   DE,#0098       ;Address of Token table

                ;The following 3 instructions "shift" the new tokens into the
                ; proper token sequence. Necessary because they don't follow
                ; the standard Spectrum tokens in their sequence.
0748 FE3B           CP   #3B
074A 3802           JR   C,L074E
074C D61F           SUB  #1F

074E F5       L074E PUSH AF

074F CD7C07   L074F CALL #077C          ;Find the right table entry
0752 3809           JR   C,L075D        ;If no leading space is needed

0754 3E20           LD   A,#20          ;A space
0756 FDCB0146       BIT  0,(IY+1)       ;FLAGS - Suppress space before tokens
075A CC7607         CALL Z,#0776        ;Print leading space if FLAGS requires

075D 1A       L075D LD   A,(DE)         ;Get the character
075E E67F           AND  #7F            ;Wipe an inverted MSB, if present
0760 CD7607         CALL #0776          ;Print the character
0763 1A             LD   A,(DE)         ;Get same character
0764 13             INC  DE             ;Point to next
0765 87             ADD  A,A            ;We're done if MSB is set
0766 30F5           JR   NC,L075D       ;Loop if not

0768 D1             POP  DE             ;Contortions to decide wether to
0769 FE48           CP   #48            ; print a trailing space
076B 2803           JR   Z,L0770

076D FE82           CP   #82
076F D8             RET  C

0770 7A       L0770 LD   A,D
0771 FE03           CP   #03
0773 D8             RET  C
```

```
0774 3E20       LD   A,#20

                ;Allow for recursive printing by preventing wiping of registers
                ;(The character printer effectively CALLs itself when expanding
                ; a Token character)
                ;  Identical to Spectrum at 0C3B

0776 D5         PUSH DE
0777 D9         EXX             ;Save necessary registers
0778 D7         RST  #10        ;PRINT the A register
0779 D9         EXX
077A D1         POP  DE         ;Registers are restored
077B C9         RET

                ;Character string table search. Enter with DE=address of the
                ; table, A=entry number. Exit with DE=address of entry. Each
                ; entry has MSB=1 for last character.
                ;  Identical to Spectrum at 0C41

077C F5         PUSH AF
077D EB         EX   DE,HL
077E 3C         INC  A

077F CB7E    L077F BIT  7,(HL)
0781 23         INC  HL
0782 28FB       JR   Z,L077F

0784 3D         DEC  A
0785 20FB       JR   NZ,L077F

0787 EB         EX   DE,HL
0788 F1         POP  AF
0789 FE20       CP   #20
078B D8         RET  C

078C 1A         LD   A,(DE)
078D D641       SUB  #41
078F C9         RET

                ;Check wether the display needs to be scrolled
                ;

0790 FDCB014E   BIT  1,(IY+1)   ;FLAGS - Printer/Screen
0794 C0         RET  NZ         ;If printer, we never scroll

0795 111409     LD   DE,#0914   ;Forces a RETurn through the code to
0798 D5         PUSH DE         ; compute a printer/display address
0799 78         LD   A,B
079A FDCB0246   BIT  0,(IY+2)   ;TV_FLAG - Printing to lower screen
079E C23D08     JP   NZ,#083D   ;If not

07A1 FDBE31     CP   (IY+49)    ;DF_SZ
07A4 3813       JR   C,L07C1    ;Error if lower screen too small

07A6 C0         RET  NZ

07A7 FDCB0266   BIT  4,(IY+2)   ;TV_FLAG - Automatic listing
07AB 2816       JR   Z,L07C3    ;If not

07AD FD5E2D     LD   E,(IY+45)  ;BREG
07B0 1D         DEC  E          ;Update line counter
07B1 285A       JR   Z,L080D    ;If time to scroll the listing

07B3 3E00       LD   A,#00      ;For channel 'k' - lower screen
07B5 CD3012     CALL #1230      ;Make it the current channel
07B8 ED7B3F5C   LD   SP,(LIST_SP)
07BC FDCB02A6   RES  4,(IY+2)   ;TV_FLAG - Auto Listing is done
07C0 C9         RET

                ;Error 5 - Out of screen

07C1 CF      L07C1 RST  8
07C2 04            DEFB #04

                ;Check if "scroll?" prompt is needed
                ;  Identical to Spectrum at 0C88

07C3 FD3552  L07C3 DEC  (IY+82)    ;SCR_CT scroll count is decreased
07C6 2045          JR   NZ,L080D   ;If it's not time to scroll

07C8 3E18          LD   A,#18
07CA 90            SUB  B
07CB 328C5C        LD   (SCR_CT),A
07CE 2A8F5C        LD   HL,(ATTR_T)
07D1 E5            PUSH HL
07D2 3A915C        LD   A,(P_FLAG)
07D5 F5            PUSH AF
07D6 3EFD          LD   A,#FD      ;"Internal" pointer to channel 'k'
07D8 CD3012        CALL #1230      ;Make it the current channel
07DB AF            XOR  A
07DC 113308        LD   DE,#0833
07DF CD3F07        CALL #073F      ;Prints "Scroll?"
07E2 FDCB02EE      SET  5,(IY+2)   ;TV_FLAG - Clear lower screen
07E6 213B5C        LD   HL,FLAGS
07E9 CBDE          SET  3,(HL)     ;L mode
07EB CBAE          RES  5,(HL)     ;Reset keypress indicator
07ED D9            EXX
07EE CDCF11        CALL #11CF      ;Get a keypress
07F1 D9            EXX
07F2 FE20          CP   #20        ;ASCII space
07F4 2845          JR   Z,L083B    ;Done, if spacebar was pressed
                                   ;Works also on BREAK

07F6 FEE2          CP   #E2        ;STOP token
07F8 2841          JR   Z,L083B    ;Done, if STOP was pressed

07FA F620          OR   #20        ;Convert to lowercase
07FC FE6E          CP   #6E        ;ASCII "n"
07FE 283B          JR   Z,L083B    ;Done, if N or n was pressed

0800 3EFE          LD   A,#FE      ;Internal pointer to channel "s"
0802 CD3012        CALL #1230      ;Upper screen is current channel
0805 F1            POP  AF
0806 32915C        LD   (P_FLAG),A
0809 E1            POP  HL
080A 228F5C        LD   (ATTR_T),HL

080D CD3909  L080D CALL #0939      ;Scroll the screen
0810 FD4631        LD   B,(IY+49)  ;DF_SZ
0813 04            INC  B
0814 0E21          LD   C,#21      ;leftmost column
0816 C5            PUSH BC
0817 CDD609        CALL #09D6      ;Get disp file address for first char
081A 7C            LD   A,H
081B 0F            RRCA
081C 0F            RRCA
081D 0F            RRCA
081E E603          AND  #03
0820 F658          OR   #58
0822 67            LD   H,A        ;HL=addr of attribute byte
0823 11E05A        LD   DE,#5AE0   ;Handle scrolling attributes
0826 1A            LD   A,(DE)     ; for bottom line
0827 4E            LD   C,(HL)
0828 0620          LD   B,#20
082A EB            EX   DE,HL
082B 12      L082B LD   (DE),A

082C 71            LD   (HL),C
082D 13            INC  DE
082E 23            INC  HL
082F 10FA          DJNZ L082B

0831 C1            POP  BC
0832 C9            RET

0833 80736372      DEFB #80,"scroll",?+#80
0837 6F6C6CBF

                ;Error D : BREAK - CONT Repeats

083B CF      L083B RST  8
083C 0C            DEFB #0C
```

Modems and the Phone Line
A Cautionary Note

by Wes Brzozowski, SINCUS

When the maker of the Timex modem sold the remainder of its uncased boards as surplus scrap, and that scrap was purchased by dealers who still support the machine, it was a windfall for many users. Finally, those who couldn't justify the cost of a new modem were trying them out.

Well, it was a bit of a crap shoot. Some of the boards were obvious rejects, but most could be got working with little or no effort. But simply getting one working is no reason to be complacent. The electronic horrors that occur in phone lines are much worse than those inside your computer, and the only thing seperating their potentially dangerous voltages from your delicate computer (and even more delicate body)... is a piece of surplus scrap.

That piece of scrap may have undergone no final testing to assure that its safety features were working properly. The presence of obvious rejects means that there will also be a lot of "unobvious" rejects. This means that no quality control of any sort may be assumed for these boards. As a final note, it's possible that the lack of an FCC registration sticker makes it illegal to plug them into the phone line.

Now, I seldom write 'downbeat" stuff, and don't really want to do so now. But it's important to instill an attitude of caution among those who use these boards. The ranks of Timex users are thinning daily, and I don't want any of you to get "used up" before your time. We need each and every one of you.

I'm going to describe the Subscriber Line Interface portion of the modem, with emphasis on its safety features. This way, those of you who've been fixing them or adding RS-232 ports and such understand that some portions absolutely MUST NOT be played around with. I'll give no guarantee that this article covers all eventualities. It will show that you are at risk if you tamper with or use a tampered modem, and that even an untampered board is no guarantee of safety.

Let's first understand what happens on your Subscriber Line when you use your phone. Although it contains four wires, only two, the red and the green wires, are actually used. The incoming signals, as well as your own voice signals, are added together, and sent on just two wires. A clever circuit inside the phone makes sure that only a small portion of your own voice signal gets to your own earpiece.

When the phone handset is on the hook, a high impedance exists across the two wires. When you pick up the handset, it puts a low impedance across them. When the phone system sees that it can now put a certain level of DC current through your line, it sends a dial tone, and is ready to accept your dialing signals. At this point, the voltage across the wire is fairly low.

Pulse dialing (the rotary kind) is done by momentarily shifting the impedance from the low to the high value. One quick pulse will dial a "1". Two quick pulses will dial a "2", and so on. After you've dialed enough pulses, the phone system takes over and checks the phone line at the party you are calling.

If that party has a low impedance across its two wires, the line is busy, and you get a busy signal. If it has high impedance, the phone system sends them an alternating plus and minus 45 volt signal to ring the bell. The bell is connected across the same two wires, but has a capacitor in series, so that it wont allow DC to pass through. But the alternating signal has no problem making it ring. If they pick up the handset, the phone system detects the low impedance, stops sending the ring signal, and connects you. Now you can talk.

A redrawn schematic for the modem is included here. We'll be looking

at the far right hand portion, which handles these strange contortions from the phone line. As you can see, only the red and green wires actually go anywhere inside the modem circuitry.

When the relay K1 is energised, it closes a pair of contacts, and a low impedance DC path exists from the green wire, through R26, through the primary winding of T1, to R27, and to the red wire. This takes the modem "off hook". Momentarily opening the contacts will accomplish dialing. The components C22 and R28 across the relay contacts prevent an occurrence know as "dial tapping", where dialing one phone may cause an extension phone to ring slightly. In any case, the one relay can either take the modem off hook and dial, or it can "answer the phone", if it knows the phone is ringing.

The ring detector circuit consists primarily of the VM108, and U13, and 4N29. The VM108 is a full wave rectifier that changes the alternating 45 volts to something more like a constant 45 volts DC. Like a phone bell, the circuit has a series capacitor, so that it does not produce a DC path across the phone line.

The 45 volts "DC" makes its way to U13, which is an optoisolator. This device essentially contains an LED and a phototransistor. Lighting the LED turns on the transistor, without any direct electrical connection. This isolates the 45 volt ring signal from the 5 volt logic in the modem, preventing damage. Realize, now, that one corner of U13 can see 45 volts, while the rest of the chip is connected to circuitry that will blow out in an instant if that voltage gets through. If, through a loose bit of wire, or any other short circuit, you allow the 45 volts to get across that chip, you'll likely lose both the modem and the computer.

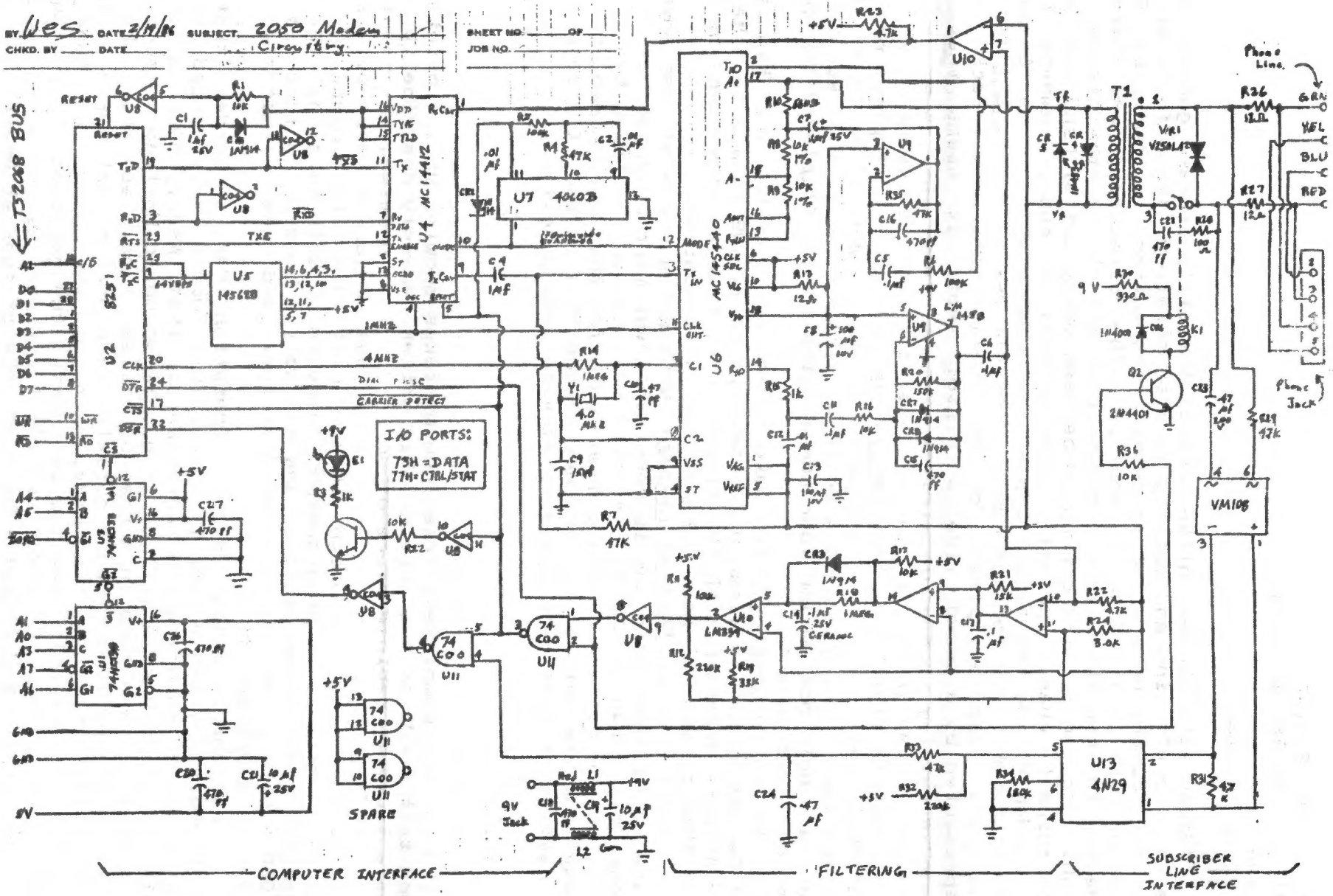
Note also that the ring signal can readily "light you up" if you happen to be touching the wrong part of the board when the phone rings. If you have to work on the modem, turning off the computer isn't enough: UNPLUG IT FROM THE PHONE LINE!!!

The capacitor in series with the VM108 is rated at 200 volts. NEVER substitute a capacitor with a lower rating. Much higher voltages than the ring signal can appear across the line, due to lighting, or man made equipment failures.

VR1 is a varistor, which prevents the extra high voltage spikes from getting in. But there's a range of voltages it can't handle. A spike of only 150 volts or so would continue straight through. Transformer T1 isolates the phone line from the analog modem circuitry, and diodes CR4 and CR5 are sufficient to get the lower voltage spikes that pass the varistor, limiting the signal to a volt or so. Because of the transformer and the optoisolator, the phone circuitry is completely isolated from the rest of the modem. Any spikes that try to get through the transformer are stopped by the varistor and diodes. NEVER try to run without them.

Unfortunately, the modem CAN run without them; particularily it can run without the varistor which doesn't do anything until a voltage spike appears. Worse, if the varistor fails, or was bad to begin with (a certain percentage are, and we can't expect these boards to have been properly tested). It simply won't provide any protection at all, although the modem will continue to work happily right down to the fatal moment. The moral here is that you shouldn't even think of running one of these boards during a thunderstorm, when one is possible, or one might be in the distance. Even then, there's no guarantee of a clean phone line. Surge suppressors on your power line won't help here; if your phone line is unguarded through a bad varistor, you are vulnerable.

I am really sorry if this throws "cold water" on anyone's enthusiasm. I prefer to encourage enthusiasm, but everyone must be aware of the risks that may accompany these modem boards. A scrap disk drive or printer interface wouldn't have the same problems, as they're not hooked to such a hostile environment as the phone system. Modems are different. If you intend to use one of these boards, PLEASE be careful.


BY Wes DATE 2/9/86 SUBJECT 2050 Modem
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Circuit Diagram
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JOB NO.
⇐ T3268 BUS
I/O PORTS:
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77H = CTRL/STAT
4MHZ
CARRIER DETECT
TXE
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Phone Jack
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WAR GAMES REVIEW

by Scott Eddy, SINCUS

War in the East
Fall of the Third Reich
Ardennes
Britian Invaded

Games like these, unlike some of the silly arcade games, are real tests of one's mind and ability to plan strategy. These four, all written for the TS2068, have a lot in common. The author is Mark L. Streuber. Playing time is 1 1/2 to 2 hours. The directions are hard-to-read sheets. In them there is a 2-dimensional attack chart, graded left to right accoding to strength ratio between enemy units, and up and down according to chance and unforeseen factors, obviously numbers generated at random during the attack phase. The human plays for the Germans, and the computer plays for the Russians or Allies, except in *Britian Invaded*, where the computer plays for the German invaders. Each attack is represented by a sound like a pistol shot. It seems that tactical maneuverability is sharply limited by the fact that once a unit is adjacent to an enemy you can no longer control its movements in any way.

Sharp's flyer says that *War in the East* is the simplest of the four but their best seller. The game is 30 turns long, of which turns 12 and 13 are mud turns. To score a decisive victory over the Russians, must take and hold Moscow for four consecutive turns. *(I played the game once and did just that.)*

To win in *Ardennes*, you have to score 1.6 or higher. This is a ratio of German to Allied victory points. 1.3 to 1.5999 is a draw. The idea is to attack, break through the Allied line, take as many towns as possible, and then defend. German victory is hard to achieve.

The object in *Britian Invaded* is to get a score of less than 1. The game is 15 turns long and is considered the most advanced of the four. However, if two of the four squares over London are taken by the Germans, then London falls and it's sudden death for the game. Keep the Germans away from the rail lines, or they'll cut them in two. *(In several tries, I have never even come close to winning this game.)*

Arnhem

This game is much more elaborate and detailed than the others, and although not completely free from mistakes showing up in printed titles and text words on the screen, this writer can only describe it generally as a truly incredible piece of software. It's British, obtainable through English Micro Connection*[ed. note: EMC is no longer doing business]*, and its author, Robert T. Smith, is an expert in military operations and war games as well as in programming. There is no 2068 version; the Spectrum version requires an emulator and probably a booster to load it in your 2068. There is an Amstrad 664 version, and the illustrated 24 page booklet addresses both.

The game is based on the Operation Market Garden that General Montgomery devised which, if successful, would have ended the Second World War in Europe before Christmas in 1944. Nearly 5000 aircraft were used to drop three divisions into Nazi occupied Holland to secure bridges intact in five places on a road 60 miles long, so that the invading British ground forces could quickly reach Arnhem just north of the Rhine and outflank the Siegfried Line, turn into the industrial Ruhr and end the war. This really amounted to running the gauntlet. They didn't quite make it to Arnhem. The American 101st Airborne Division was to take the bridges at Zon and Veghel, the 82nd, the bridges at Grave and Nijmegen,

and the British 1st, the bridges at Arnhem, also known as The Bridge Too Far, the name of the motion picture based on this historical episode. The Germans had retreated north in such disarray as to suggest that the plan would work, but they were quite strong in Holland, with two Panzer divisions stationed in the Arnhem area.

This game is really five, each of which can be played with one player (with the computer playing for the Germans), or with two.

1. Advance to Einhoven: - 7 turns, less than one hour;clear the road of Germans.
2. Operation Garden: - 10 turns; takes the ground forces as far as Grave.
3. Operation Market: - 26 turns; covers Nijmegen and Arnhem.
4. The Bridge Too Far: - 15 turns; involving only the British 1st Airborne Division. This is almost impossible to pull off. The Germans just keep pouring in.
5. Market Garden: - 26 turns;the whole battle;takes 8 to 10 hours to play.

At the end of each turn--there are three turns for each day--you have the option of continuing the game, saving or loading. Also, you are asked if you are playing in black and white. This is slightly misleading, as the only difference is that, in color, the British units, and the border during the British turn, is yellow instead of blue like for the Americans.

Each turn has three phases. Phases 1 and 3 are for the motorized units and phase 2 is for the other units. Each unit can move or dig in during each phase, but not both. It can only attack once during a turn, however. It can bombard if it's artillery; how far depends on whether it's motorized or not, or if it's airlanding artillery. It can travel if its on a road. You can give it orders to go anywhere, as long as it's on a road. It will go ten spaces during each phase until it gets there, and you can always intercept and change the orders. It can change size from the regular 4-square size to condensed, for going over bridges. There are many kinds of units, and each unit is individually presented in turn with its name and division (as long as it hasn't been wiped out), and, if you ask for it, a complete report on its strength, effectiveness, morale, attack modifer, and unit size. Units arriving by air can be dropped anyplace you put it, as long as it's in open terrain. (No hanging from trees or church steeples.)

It's easier to let the Germans get on the road than it is to get them off it once they park behind a bridge. (I find my chances of winning for the Allies to be just about nil if I also move the Germans in a two player game.)

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*              est. 1982                *
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A very big thank you to Scott Eddy and Wes B. for their fine contributions to this month's letter- as the editor I dont mind the job of editing, but I need YOU TO GIVE me something to EDIT so you dont have to read MY newsletter- but YOUR newsletter- INPUT Your ideas, thoughts, questions. Businesses, groups, mags are shutting their doors because of lack of interest I hope you will help soon Keep our doors open- PAH

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SNOW
<<<EMERGENCY>>>
NOTICE

SNOW EMERGENCY TRAVEL ADVISORY is issued by the BROOME COUNTY SHERIFF -on the DAY of our MONTHLY meet, the MEETING is CANCELLED & We WILL meet at the next SCHEDULED MEETING--DONT TAKE CHANCES, We'd rather see you next time. call 798-7219 after 5pm to check on cancellation. DRIVE WITH CARE

ANSWERS to question on Sir Clive on page 2; 1)Yes and 2) Anne (Source of Data-TIME, Jan 3,'83, page 29)

IBM is announcing a whole new line of pc's in early April, all new software, hardware a whole new ball game for the clones, users, and Apple will probably come out ahead in the office sales...every four years a whole new system? Can IBM do it.....

OPTIPACK for a closer look

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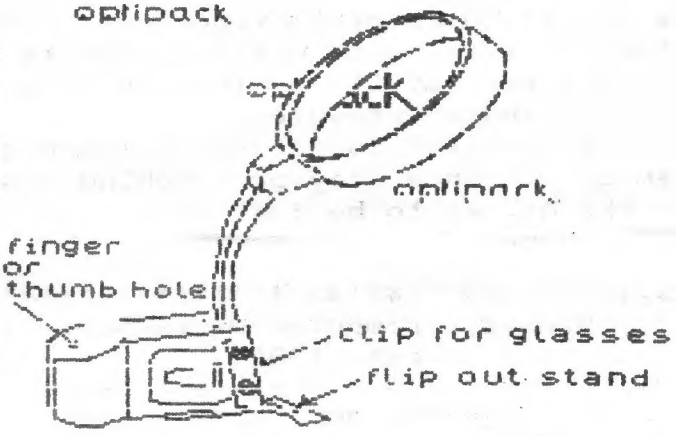

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